

EVALUATING TECHNICAL RESCUE TEAM PROGRAMS

STRATEGIC MANAGEMENT OF CHANGE

BY: Kevin Croegaert
Waukesha Fire Department
Waukesha, Wisconsin

An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

February 1999

ABSTRACT

The Waukesha Fire Department formed a Special Services Team in 1993 to respond to complex technical rescue incidents. The problem was developing an accurate assessment of their capabilities.

The purpose of this research was to do a program evaluation of the Waukesha Fire Departments Special Services Team.

The study used historical research methodology to review periodicals, journals, textbooks, government documents and other sources of literature to answer the following questions.

- 1.) What components are desired in a technical rescue program?
- 2.) What core competencies are required or desired of a successful team?
- 3.) What evaluation criteria should be used to identify operational capabilities?

Action research was used to develop a program evaluation instrument and conduct a program evaluation. The evaluation was conducted by an independent group of experts, who reviewed program information and then reached consensus on compliance, in a round table discussion format.

The results of this study indicated that a well documented, detailed plan was essential for program success. Administrative guidelines with goals and objectives, competency levels, detailed training programs and an ongoing evaluation plan are also critical factors.

The recommendations stemming from this research were for the Waukesha Fire Department to: 1.) Institute a transitional management team to create a team program manual with clear vision, comprehensive goals and objectives, standard operating guidelines for all disciplines and administrative guidelines. 2.) Develop an effective training program with initial training standards, a training maintenance plan and a team training documentation and record strategy. 3.) Develop an ongoing evaluation plan with realistic scenarios, independent evaluators and comprehensive reviews of the program and team members.

TABLE OF CONTENTS

| | |
|--|----|
| ABSTRACT..... | 2 |
| TABLE OF CONTENTS..... | 4 |
| INTRODUCTION..... | 5 |
| BACKGROUND AND SIGNIFICANCE..... | 6 |
| LITERATURE REVIEW..... | 8 |
| PROCEDURES..... | 16 |
| RESULTS..... | 18 |
| DISCUSSION..... | 21 |
| RECOMMENDATIONS..... | 23 |
| REFERENCES..... | 24 |
| APPENDIX A (Confined Space Implementation Report)..... | 27 |
| APPENDIX B (Combined Special Services Letter)..... | 31 |
| APPENDIX C (Cessation of Operations Memo)..... | 33 |
| APPENDIX D (Program Evaluation Form)..... | 34 |

INTRODUCTION

Throughout the nation, fire departments are being called on to accept larger and more diverse roles in special rescue emergencies. These complex incidents require varying amounts of special equipment and specially trained personnel. Fire departments have taken many approaches to handling these technical rescue incidents. Some have ignored the extraordinary risks to victims and rescuers, while others have created special teams and invested large sums of money on special equipment.

The problem the Waukesha Fire Department (WFD) faced was an accurate assessment of their capability to perform this complex mission. As a result, identifying training needs, continuity of operations between shifts and the feasibility of expanding services to other communities became very subjective depending on the individuals perspective.

The purpose of this research is to do a program evaluation of the WFDs Special Services Team (SST). This study utilizes historical and action research methods to answer the following questions:

- 1.) What components are desired in a technical rescue program plan?
- 2.) What core competencies are required or desired of a successful team?
- 3.) What evaluation criteria should be used to identify operational capabilities?

BACKGROUND AND SIGNIFICANCE

The City of Waukesha is the county seat of Waukesha County, and covers approximately 20 square miles. The population of the city is 65,000 residents and the county estimate is 350,000. Waukesha County is the fastest growing county in the state of Wisconsin and is also the wealthiest. The county has 33 separate fire departments being served by volunteers, paid on call, career and combinations.

The City of Waukesha Fire Department (WFD) is a career department with 93 full time firefighters and officers. They provide fire suppression, technical rescue, emergency medical services (basic [EMT-D] and advanced life support [Paramedic]) as well as education and inspection services.

In 1998, the Waukesha Fire Department responded to 5,000 alarms from four firehouses operating a total of four engine companies, one ladder company, three ambulances and one on-duty chief. Minimum daily staffing was 23 members per shift.

The WFD, like many departments, has participated aggressively in shifting missions and priorities over the years. In 1968, they assumed the role of emergency medical service (EMS) providers, much to the relief of the police department, who wanted out of the EMS business. In 1975, they added advanced life support units and a tiered response system. The early 1980s saw an increased awareness of technical rescue hazards and a hazardous material team, water rescue team, rope, trench and special rescue units were formed. These teams operated independently, but often had members from different disciplines serving on more than one team. In 1986, the team leaders met and drafted a confined space implementation report (appendix A) recommending the

combining of all teams into a combined technical rescue team operating an engine and a platform truck out of one station.

In 1993, the department implemented a combined team of two light rescue companies that would merge at incidents to form a “heavy” rescue company (appendix B). Dissatisfaction in this arrangement was voiced by team members who complained of different approaches to operations, lack of training, inadequate guidance and lack of policies. In June of 1995, the six, team leaders sent a letter to the Chief demanding a halt in special team operations (appendix C).

The last change came in 1997, when the team was relocated to one station with an engine and a platform truck. In early 1998, the Waukesha County Association of Fire Chiefs requested that the City of Waukesha Fire Department, contract technical rescue service, to the other 32 departments in the county.

Again, as in 1995, three team leaders and other members resigned citing the same concerns as before. This prevented the department from seizing the expanded mission and outside revenue source. The Chief replaced the Deputy Chief in charge of Special Operations and gave this responsibility to the training bureau with an order to “fix it”.

This paper was prepared to satisfy the applied research requirements associated with the National Fire Academy’s *Strategic Management of Change* course. This research relates to the change management model module of the course, by providing a framework to identify organizational conditions, systematically examine forces for and against change, implementation of programs and evaluating the change through institutionalism.

The results of this research are significant to the Waukesha Fire Department in terms of how the Special Services Team will be integrated into the strategic plan of the department and the county response plan. This research provides facts and recommendations that will assist the training bureau in identifying and implementing the necessary changes to ensure a safe and competent technical rescue team.

LITERATURE REVIEW

The purpose of this literature review was to establish the necessary criteria to conduct a program evaluation of technical rescue teams.

What components are desired in a technical rescue program plan?

When developing rescue team objectives, a sound strategy and comprehensive documentation is essential. Roop, Vines and Wright (1998) say, "...you must create a clear strategy for developing the team. A coherent strategy is essential in creating an effective and viable rescue service" (p.1). They go on to describe the reasons for comprehensive documentation:

It is important to document all major elements of team development.

Putting the major elements in writing will:

- 1.) Help transform ideas into concrete team goals.
- 2.) Help develop standardized operational guidelines.
- 3.) Provide a legal record to deal with issues of compliance and liability.

4.) Develop a historical reference that remains through changes of management and other personnel (p.1).

Selecting a methodology or clearly defined way of accomplishing an end, is a must to develop a road map or path for a program (Klein and Manganelli, 1994). They go on to say, “Begin with the development of a clear statement of corporate goals and strategies” (p.25). Roop, et al. (1998) believes this begins with a written mission statement. They describe it as, “...a concise summation of what a group is ultimately trying to accomplish” (p.9). Equally important is a clear and compelling vision that inspires people to achieve the goals (Daviss, and Wilson, 1994). They contend, “That vision can become clear and compelling only when disparate individual innovations are integrated into a working system that proves its power to overcome the problems that the old paradigm can’t” (p.27). Senge (1990) discusses building a shared vision:

If any one idea about leadership has inspired organizations for thousands of years, it’s the capacity to hold a shared picture of the future we seek to create. One is hard pressed to think of any organization that has sustained some measure of greatness in the absence of goals, values, and missions that become deeply shared throughout the organization (p.9).

When describing the nature of evaluation in the manual for the National Fire Academy’s (NFA) *Strategic Management of Change* course (1996) they state, “Whether a change management approach is working is determined by evaluating the effects of the implementation against the goals and objectives set out in the change plan” (SM 2-16).

“Success also depends on a well defined project mission with a clear scope, parameters and a desired outcome”(McArthur, and Womack, 1995, [p.73]).

Roop, et al. (1998) believe it is equally important to establish standard operating guidelines (SOGs) to identify the major team components; team structure, membership/leadership selection, communications, notification and response, incident command system and the specific rescue areas to be performed.

Brown (1994) focuses on “the big three” in planning for rescue, he states:

Enlightened fire and rescue service managers realize how “special” people, “special” training, and “special” equipment work together to improve the chances of survival for rescuers and victims in technical rescue operations...Eliminate, or even compromise, any of these “big three” components of technical rescue, and special rescue operations become prohibitively perilous (p.39).

The components of rescue operations are explained in Ray Downeys', *The Rescue Company* (1992) as planning, training, operations, tools and equipment, and personnel. McArthur and Womack (1995) summarize the structure components as “...the key elements of a meaningful planning process and serve as a filter or checklist for all planning to ensure that the desired outcome or mission is clear and adds significant value. The list is also used to evaluate work” (p.142).

The final component of the rescue plan is the selection of personnel. The United States Fire Administration (USFA), (1995) wrote, “ The backbone of a good technical rescue team is well trained, experienced personnel” (p.5-1). They believe that selection processes that recruit members with mechanical aptitude, physical strength, resourcefulness, and inventiveness and are skilled working with their hands are crucial. They go on to say, “Rescue team personnel must also be willing to meet the minimum

standards required to achieve and maintain special training certifications” (p.5-1). The Maryland Fire and Rescue Institute (1998) expand that list by adding, interest, initiative, education and knowledge, confidence, competence, maturity, discipline and emotional stability.

Once a department has established its program plan components and identified which rescue areas it intends to offer, a review of laws, regulations and standards must be undertaken to identify core competencies.

What core competencies are required or desired for a successful team?

Downey (1995) advises a needs analysis be conducted to identify training program needs. “The types of rescue incidents you respond to and how frequently you respond to them will give you a basis from which a specialized program can be developed” (p.28). Rhea (1997) agrees and asserts:

Organizing effective training programs for special rescue teams begins well before you even consider writing teaching outlines. It begins with the actual development of the team. It involves evaluating the need for a team, identifying rescue target hazards, and determining response alternatives.

This lays the groundwork for a successful training program (p.81)

The USFA (1995) identifies four levels of competency, awareness, operations level, technician level and specialist/instructor level. Most of the other relevant standards list criteria for the first three levels and hazardous materials standards list the incident command function as a fifth level.

The Occupational Safety and Health Administration (OSHA) has a variety of applicable laws that identify rescue competencies. These are mandatory unless superseded by state law.

OSHA 29 CFR 1910.120, *Standard on Hazardous Materials Response*. This document addresses haz-mat training, Incident Management System, and operations to include emergency response.

OSHA 29 CFR 1910.132, *Standard on Personal Protective Equipment*. This document identifies equipment, protective clothing, respiratory devices, environmental barriers and mechanical irritants that harm the body through inhalation, absorption or physical contact.

OSHA 29 CFR 1910.134, *Standard on Respiratory Protection*. This document lists the requirements for type of respirator protection, training of user and maintenance.

OSHA 29 CFR 1910.146, *Standard on Permit-Required Confined Space*. This document establishes the program criteria for entry into spaces that are large enough and so configured that an employee can enter, has limited or restricted ways in or out and is not intended for continuous employee occupancy.

OSHA 29 CFR 1910.147, *Standard on Hazardous Energy Control* (lockout/tagout). Addresses the isolation of energy from machines or equipment to prevent injuries or death to employees.

OSHA 29 CFR 1910.1030, *Standard on Bloodborne Pathogens*. This document identifies the exposure protection to infectious materials.

OSHA 29 CFR 1926.650 (Subpart P), *Standard on Construction Excavation*. This document applies to all open excavations made in the earth to include trenches.

The National Fire Protection Association (NFPA) also has a variety of consensus standards applicable to rescue teams. These standards require voluntary compliance.

NFPA 472 (1992) is the *Standard for Professional Competence of Responders to Hazardous Materials Incidents*. This document describes the required competencies for first responder at the awareness and operations level, hazardous material technician, incident commander and specialist.

NFPA 1500 (1997) is the *Standard on Fire Department Occupational Safety and Health Program*. This document applies to departments engaged in providing emergency services and lists training frequency, safety considerations and more.

NFPA 1521 (1997) is the *Standard on Fire Department Safety Officer*. This document addresses the position of safety officer and the required competencies.

NFPA 1582 (1997) is the *Standard on Medical Requirements for Fire Fighters*. This document outlines the required or suggested medical requirements for rescue personnel.

NFPA 1983 (1995) is the *Standard on Fire Service Life Safety Rope and System Components*. This document sets standards for rope rescue equipment.

Of all the standards listed, the two new standards, due to be published in 1999 will be the most useful for outlining core competencies, NFPA 1670 and NFPA 1006.

NFPA 1670 (draft) is the *Standard on Operations and Training for Technical Rescue Incidents*. Roop et al. (1998) describe the draft this way:

NFPA 1670 ... is the first effort ...to develop a standard directed for organizations operating at various levels of capability in a variety of

technical rescue disciplines. This standard helps an organization evaluate itself and determine if it can function at any of three levels... the standard also creates guidance for training they must comply with (p.357).

NFPA 1006 (draft) is the *Standard on Professional Qualifications for Rescue Technicians*. This document is direct at the individual as opposed to the organization. This standard sets the minimum requirements to achieve the highest level of capability in a given discipline.

Once the core competencies are selected, for the individual disciplines the department has chosen to provide, a strategy for evaluating the team must be identified.

What evaluation criteria should be used to identify operational capabilities?

One of the challenges of maintaining a rescue team is ensuring the team is capable. Klein and Manganelli (1994) found that job satisfaction increased with employee competency. They wrote, “This task assesses current personnel in terms of their skills, knowledge, orientation, the extent of their “buy-in” to the change, and their aptitude”(p.202). Rhea, (1997) identified the need for a skills maintenance program with actual, “real world”, training exercises. He believes to properly evaluate you must, “Evaluate skills by directly applying them under realistic conditions” (p.80). Roop et al. (1998) says,

Most rescue experts agree that the most expeditious manner to accomplish verifiable evaluation of rescue capabilities, as proposed by OSHA, is to conduct an annual documented performance evaluation of the service. An evaluator can conduct and document the evaluation. It is recommended

that this evaluation consist of, at a minimum, three simulated problem scenarios of the type the service is likely to encounter...Additionally, the evaluator should administer a written test designed to evaluate the team members' general knowledge (p.316).

The NFA (1996) describes the program evaluation as an ongoing process. Continually evaluating implementation, against the goals, the vision and unanticipated actions and reverting back to planning each time a concern is noticed.

Summary

In summary, the reviewed literature identifies the components of a technical rescue program as 1.) Written documentation of the plan including a mission statement, clear vision, comprehensive goals and objectives, standard operating guidelines and “special people, training and equipment”. The core competencies start with an individual department assessment of rescue needs to 2.) Develop effective training programs based on the competency level desired with the criteria identified in the applicable standards. Finally the program evaluation criteria should be carried out by outside experts and include 3.) The program documentation and record keeping practices, the training program utilizing practical skills and written tests and “real world” rescue scenarios to prove competency.

PROCEDURES

The research procedure used in preparing this paper began with a literature review at the Learning Resource Center (LRC) at the National Fire Academy (NFA) in August of 1998. Additional literature reviews were conducted at the Waukesha Public Library in Waukesha Wisconsin, an internet search of various government sites and the authors personal library between August, 1998 and February, 1999.

The desired outcome of this research was to do a program evaluation of the WFDs Special Services Team. The research was historical research in that the literature review was conducted to identify authoritative sources that addressed technical rescue team programs. The literature review focused on two specific areas. First a search was made for program development guidelines, standards and evaluation criteria related or specific to the fire service. The second search was a search for material related to program evaluation and program development of a more general nature, from private corporations, government sources and management authors.

The research was action research in that information gathered through historical research was applied to an evaluation of the WFDs Special Service team. On September 9th 1998 the author met with the Waukesha County Association of Fire Chiefs and asked if representatives from their technical rescue committee could be selected to assist in the evaluation of the special services team.

A program assessment instrument was developed and called "Program Evaluation" (appendix D). The purpose of this form was to aid in determining areas to cover during the evaluation.

On February 10th 1999, the evaluation team, which consisted of; Lieutenant Pat McCarthy - technical rescue coordinator for the Wauwatosa Fire Department (WI), Captain Paul Wobosel - director of Milwaukee Regional Hazardous Material Team, Deputy Chief Brian Peterson - Brookfield/Butler Hazardous Material Corporation director, Chief Duane Blanchard - New Berlin Fire Department Hazardous Materials coordinator, and Doug Mueller, - Miller Brewing Companies hazardous material director (Milwaukee), met with the Waukesha Fire Departments Training Officer and the head of the Special Services Team to evaluate the written program components.

The data from the Program Evaluation instrument was collected by round table discussion and answers were arrived by a consensus of the evaluation team and recorded to a single document.

Limitations and Assumptions.

This research was limited by a number of factors and assumptions. The first assumption was that all members of the evaluation team were qualified to perform the evaluation.

The second was that an evaluation of the program might or may not be indicative of the departments' ability to actually perform special operations. Furthermore, the results represented here may not be representative of other organizations.

Definitions.

TECHNICAL RESCUE – a group of emergencies to include, but not limited to, structural collapse, trench cave-in, confined space, rope rescue, water emergencies, hazardous materials and extrication.

LAWS – are primarily created through an act of Congress or by individual state legislatures. Laws typically provide broad goals and objectives, mandatory dates for compliance, and established penalties for non-compliance (Hildebrand, 1994)

REGULATIONS – sometimes called *rules*, are created by federal or state agencies as a method of providing guidelines for complying with a law which was enacted through legislative action (Hildebrand, 1994).

CONSENSUS STANDARDS – are normally developed through professional organizations or trade associations as a method of improving the individual quality of a product or system. (Hildebrand, 1994)

RESULTS

Research question #1

What components are desired in a technical rescue program plan? Roop et al. (1998) say, “...you must create a clear strategy for developing the team. A coherent strategy is essential in creating an effective and viable rescue service” (p.1). Selecting the proper methodology to develop a road map and then focus on the key components; documentation, selection of personnel, proper training and special equipment.

The program itself must have a compelling vision, a comprehensive mission statement, written goals and specific objectives. The NFAs *Strategic Management of Change* course (1996) stated, “Whether a change management approach is working is determined by evaluating the effects of the implementation against the goals and objectives set out in the change plan” (SM 2-16).

The evaluation of the Waukesha Fire Departments, Special Services Team indicated a lack of most of the desired program components (see figure 1). Of the fifteen questions asked, only two yes answers were given. An appropriate mission statement is included in the Department regulation book and sufficient equipment for those missions is available. Of the other responses, SOGs, were a partial no, as several team documents exist.

Unexpected findings.

Following the evaluation, the evaluation team applied this evaluation instrument to their individual teams and found that none of the five teams passed. When asked if the tool was fair, effective, and representative desired program components, all members agreed. Subsequently, the Waukesha County Association of Fire Chiefs has created a technical rescue sub-committee, to develop a standard, hazardous materials operations and technician level program with evaluation tools to be adopted and used by all county departments.

Research question #2.

What core competencies are required or desired of a successful team? Downey (1995) advises that a needs analysis be done to determine what types of rescue the team will be performing. Based on that the department needs to select the level of competency they want to achieve for each discipline. The USFA (1995) Identifies four levels of competency; awareness, operations level, technician level and specialist/instructor level. Determining the core competencies requires identifying the appropriate laws, regulations and standards, and applying the appropriate competencies.

Research question #3.

What evaluation criteria should be used to identify operational capabilities? Roop et al. (1998) says, "...the most expeditious manner to accomplish verifiable evaluation of rescue capabilities...is to conduct an annual documented performance evaluation" (p.316). This evaluation should be conducted by outside experts and include, real world scenarios, and written tests. The NFA (1996) describes a program evaluation as an ongoing process continually evaluating the implementation against the goals and objectives. Any deviation from the vision should revert the process back to the planning stage.

Figure 1

Program Evaluation

| Question | Yes | NO | Comments / Suggestions |
|--|----------|----------|--------------------------------------|
| Does department have a technical rescue program manual? | | X | |
| Does team have a comprehensive Mission Statement? | X | | Part of Department Regulation Manual |
| Does team have a clear and comprehensive Vision Statement? | | X | |
| Are team goals written and specific? | | X | |
| Are administrative guidelines comprehensive? | | X | |
| Are objectives specific and quantifiable? | | X | |
| Is criteria established for team membership? | | X | Based on station assignment |

| | | | |
|--|----------|----------|-------------------------------------|
| Do SOGs cover all required areas? | | X | Yes for CSE, Haz-Mat and Ice rescue |
| Does Team have sufficient equipment? | X | | Excellent equipment selection |
| Have core competencies been identified? | | X | |
| Have minimum training standards been set to include skill sheets and task sheets? | | X | |
| Has training curriculum been developed or updated? | | X | General commercial programs used |
| Is a team maintenance plan in place to include a detailed methodology of refresher training and practice drills? | | X | |
| Is training documented and records maintained for the team as well as for the individual team members? | | X | General training documentation |
| Has an ongoing evaluation plan been instituted? | | X | |

(Figure 1 continued)

DISCUSSION

The results of this study would seem to indicate, that the Waukesha Fire Department has not adequately planned and documented its' rescue program.

It is important to document all major elements of team development.

Putting the major elements in writing will:

- 1.) Help transform ideas into concrete team goals.
- 2.) Help develop standardized operational guidelines.

3.) Provide a legal record to deal with issues of compliance and liability

4.) Develop a historical reference that remains through changes of management and other personnel (Roop et al. 1998, [p.1]).

Had the planning process been more comprehensive, the dissatisfaction of the team members over the years could have been systematically traced to some facet of the program.

An important concept in planning was left out. The need for a vision to guide the process was omitted. Senge (1990) states,

If any one idea about leadership has inspired organizations for thousands of years, it's the capacity to hold a shared picture of the future we seek to create. One is hard pressed to think of any organization that has sustained some measure of greatness in the absence of goals, values, and missions that become deeply shared throughout the organization (p.9).

The vision of the end goal seems to be a unifying thread in the planning process. Reference to this critical factor was found in research from experts on management, quality control, system design, program evaluation and the fire service.

A multitude of standards exists, for reference, guidance and legal compliance but few delineate broad program goals into specific training objectives. The two new NFPA Standards (NFPA 1670 and NFPA 1006) would seem to provide a great deal of guidance. This should make the identification of core competencies much easier and therefore specific, detailed training can be established.

Finally, the program evaluation conducted, highlighted some significant program deficiencies. Yet, it seems the more comprehensive the program, the more detailed and

specific the evaluation would need to be. McArthur and Womack (1995) summarized this project quite simply; “Success also depends on a well defined project mission with a clear scope, parameters and a desired outcome” (p.73)!

RECOMMENDATIONS

The recommendations stemming from this study are:

- 1.) Institute a transitional management team to create a team program manual with:

- Clear vision.

- Comprehensive Goals and Objectives.

- Standard Operating Guidelines for all desired disciplines.

- Administrative guidelines.

- 2.) Develop an effective training program to address:

- Minimum initial training standards.

- Training maintenance plan.

- Team training documentation and record strategy.

- 3.) Develop an ongoing evaluation plan with:

- Realistic scenarios.

- Independent evaluators.

- Comprehensive review of program and individuals.

REFERENCE LIST

- Brown, M. (1994, May). Training technical rescue teams. *Fire Engineering*, 147, (5), 39–43.
- Daviss, B. and Wilson, K. K. (1994). *Redesigning education*. New York, NY: Henry Holt and Company.
- Downey, R. (1992). *The rescue company*. Saddle Brook, NJ: Fire Engineering Books & Videos.
- Downey, R. (1995, January). Specialized rescue training. *Fire Engineering*, 148, (1), 24-34.
- Hildebrand, J. F. (1994). *Instructors guide to hazardous materials*, Stillwater, OK: Fire Protection Publications Oklahoma State University.
- Klein, M. M. and Manganelli, R. L. (1994). *The reengineering handbook*. New York, NY: AMACO.
- McArthur, C. D. and Womack, L. (1995). *Outcome management*. New York, NY: Quality Resources.
- Merrick, C. (Ed.) (1998). *Rescue Technician*. St. Louis, MO: Mosby-Yearbook.
- National Fire Academy. (1996). *Strategic management of change*. (NFA–SMOC–SM). Emmitsburg, MD: Author.
- National Fire Protection Association. (1992). *Standard for professional competence of responders to hazardous materials incidents*. (NFPA 472). Quincy, MA: Author.
- National Fire Protection Association. (1997). *Standard on fire department occupational safety and health program*. (NFPA 1500). Quincy, MA: Author.

National Fire Protection Association. (1997). *Standard on fire department safety officer*. (NFPA 1521). Quincy, MA: Author.

National Fire Protection Association. (1997). *Standard on medical requirements for fire fighters*. (NFPA 1582). Quincy, MA: Author.

National Fire Protection Association. (1995). *Standard on fire service life safety rope and system components*. (NFPA 1983). Quincy, MA: Author.

National Fire Protection Association. (Draft). *Standard on operations and training for technical rescue incidents*. (NFPA 1670). Quincy, MA: Author.

National Fire Protection Association. (Draft). *Standard on professional qualifications for rescue technicians*. (NFPA 1006). Quincy, MA: Author.

Occupational Safety and Health Administration. (1992). *Standard on hazardous materials response*. (29 CFR 1910.120). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1992). *Standard on personal protective equipment*. (29 CFR 1910.132). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1997). *Standard on respiratory protection*. (29 CFR 1910.134). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1993). *Standard on permit-required confined space*. (29 CFR 1910.146). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1989). *Standard on hazardous energy control*. (29 CFR 1910.147). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1993). *Standard on bloodborne pathogens*. (29 CFR 1910.1030). Washington, DC: U.S. Government Printing Office.

Occupational Safety and Health Administration. (1989). *Standard on construction excavation*. (29 CFR 1926.650 [subpart P]). Washington, DC: U.S. Government Printing Office.

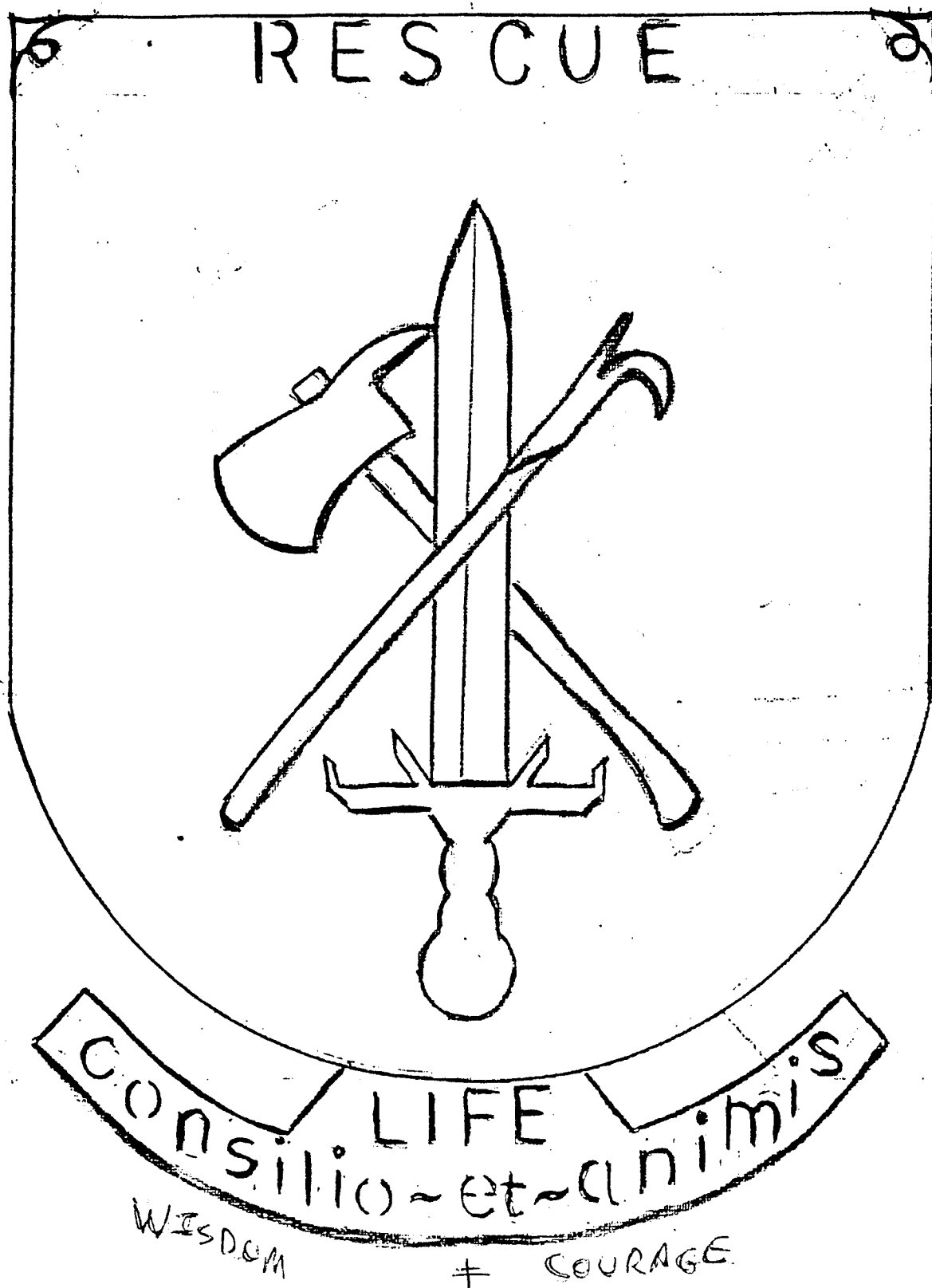
Rhea, R. (1997). Organizing and training special rescue teams. *Fire Engineering*, 150, (3), 75-81.

Roop, M., Vines, T. and Wright, R. (1998). *Confined space and structural rope rescue*. St. Louis, MO: Mosby – Year Book Inc.

Senge, P. M. (1990). *The fifth discipline*. New York, NY: Doubleday

United States Fire Administration. (1995). *Technical rescue program development manual*. Emmitsburg, MD: Author.

APPENDIX A



APPENDIX A

CONFINED SPACE IMPLEMENTATION REPORT

Having assembled most of the required equipment necessary to start a confined space team, Chief Seidl delegated to Captain Buchholtz the task of developing a team implementation plan. Captain Buchholtz formed an advisory committee consisting of himself, Lt. Pellman, Lt. Geis, Lt. Smolen, Lt. Schwingle and Firefighter Croegaert to draft a plan.

The goals that were established were to:

- A. create a mission statement
- B. analyze all resources and determine best uses
- C. determine team objectives - training, response, S.O.P.'s, qualifications, etc.

The standard confine space mission definition was quickly adopted: rescue from any space with a limited access and lack of natural ventilation.

The next goal proved to be much harder to establish. The list of available resources created an insurmountable obstacle to implementing a team. While the basic tools and equipment were all available there were several major stumbling blocks; the ability to transport this equipment to a scene in an appropriate amount of time, the ability to muster this equipment to an elevated or remote confined space emergency and probably the most difficult questions in an undermanned department is the ability to maintain a highly trained and motivated group of firefighters and deliver them to an emergency when rescue is still possible. This type of rescue is complex and may endanger firefighter safety. It is for those reasons that a continuous and comprehensive training program must be established and maintained.

After a lengthy discussion, it was agreed upon that it is impractical to operate a floating or part-time confined space team. The training and dedication of repetitious simulated rescues demands the need for a full-time group of permanently stationed rescuers.

We proceed from this point with the recommendation of a full-time, on-duty, fully manned confined space team. The logistics of this recommendation haven't escaped this committee, justification, manning, equipment, premiums, vacations picks, etc. However, we feel it is not only practical but necessary.

As we examine the skills necessary for a confined space rescue (scene stabilization, safety zones, back up teams, hazardous atmosphere monitoring, incident stress management, shoring, breaching, trenching, elevated rescues, below grade rescues, electrical contact, ropes, knots, anchoring, rigging, water and ice rescues, etc. We adopted the idea of a joint rescue team. We believe the principal of most rescues are identical and the skills needed to effect these rescues are similar. The need for a highly trained rescue team would seem self evident and a welcome addition to any incident commander.

Under the concept of a "Rescue Team" we include confined space rescue, water and ice rescue, vehicle extrication, elevated rescue, below grade rescue, rescue from burning buildings, rescue from demolished buildings, debris tunneling and shaft construction and all special rescues with the exception of Hazardous Materials Incidents.

Hazardous Materials provides a completely separate training requirement than standard rescue. We feel a hazardous material team can be established along these same guidelines but should be kept separate from the rescue team.

Our new mission statement:

Rescue: removing victims from a hazardous or life-threatening situation to areas of safety or treatment.

Primary - Locating and freeing victims and conveying them to a place of safety.
Administering first aid as necessary.

Secondary - Restoring the area to a safe condition.

Resources: The most practical arrangement for a rescue team will be a separate station equipped with a fire engine, manned with a Lieutenant, a driver and two firefighters. A platform truck manned with a Captain, a driver and two firefighters. These companies would respond in a normal response pattern, but will train and be prepared to handle all rescue emergencies. In addition, this station should be equipped with the training facilities to complete the mission (i.e. rappelling tower, confine space tunnel, shoring trench, etc.).

The process of building and equipping a rescue team could take several years of budgeting and construction. Therefore, we recommend a phase in of operations by assigning an existing station to rescue duties. Transfer qualified personnel to this station. Begin training and SOP development. At this time there will be no vacation limitations, trade restrictions or premiums until the team is fully developed and all these areas can be addressed practically and contractually.

We also recommend hiring additional firefighters, one per shift, to fully man an engine company and an ambulance to provide team commander (Lieutenant), safety officer (driver), a primary rescue team (two firefighters) and a back up team (two firefighters).

Until a platform truck can be purchased a vehicle will be required to deliver equipment to emergency scenes. Old Rescue 20 would seem ideally set up for this mission and then all of the trailers could be turned over to the EMS bureau and pulled with Truck 19.

At this point we stopped further discussion until staff could be briefed on the rescue team concept. If approved, exact implementation plans could be arranged to include time tables, additional resources, training guidelines, standard operating procedures, etc. We believe this to be the most practical solution to meet the fire departments short and long range goals, raise morale and provide a versatile, highly trained rescue team.



OFFICE OF FIRE CHIEF

WAUKESHA FIRE DEPARTMENT

130 W. ST. PAUL AVENUE
WAUKESHA, WI 53188-5172
414-524-3649

ROBERT STEDMAN
CHIEF

To: All Department Personnel

From: Chief Robert Stedman

Date: October 8, 1992

Regarding: Special Services Team

The purpose of the letter is to clarify the concept of the Departments' Special Service Team, and to answer questions that have arisen regarding the limitations of trades, vacations, and minimum staffing for members of the team.

As originally stated the Special Services Team will be staffed, and trained, to provide personnel to deploy, and mitigate, any special incident using specific equipment, skills, and training, not covered under normal Fire/EMS Operations. These Special Incidents will include the following:

| | |
|-----------------------|---------------------------------|
| Hazardous Materials | Structural Collapse |
| Confined Space Rescue | Trench Rescue |
| Ice/Water Rescue | Mass Casualty |
| Extrication | Special Rigging and Rope Rescue |

The Special Services Team concept will go into effect January 1, 1993. The department will commit to putting extrication, and other special rescue equipment, along with interested personnel into two stations. This equipment and personnel will form two "light rescue companies", capable of functioning as one Special Services Team.

The process of developing the Special Services Team will take several years, with the initial phase concentrating on S.O.G.'s, training, and team development. During this time, there will be no changes in existing manning levels, or contract language regarding vacation, trades, or premium pays. As the team becomes operational, these areas maybe addressed.

APPENDIX B

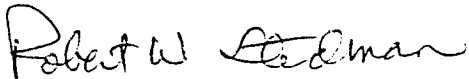
Special Services Team (Continued)

Page 2

All members that have submitted their letters of interest in becoming active in the Special Services Team will be contacted within the next week, by either myself, or Captain Biondo. We will want to confirm your continued interest in the Special Services Team as it has now been defined.

As soon as we have been able to confirm everyone's continued interest, a final selection will be made, and posted. In addition, if there are any members of the department who are interested in the Special Services Team, contact either myself, or Captain Biondo immediately.

Sincerely,

A handwritten signature in cursive script that reads "Robert W. Stedman".

Robert W. Stedman, Chief
Waukesha Fire Department

RWS:mw

APPENDIX C

26 JUNE 1995

The Special Services Team which has the primary responsibility for Hazardous Materials Incidents, Confined Space Rescue, Ice Rescue and Vehicle Extrication has failed to secure Department approval of team standards, maintain appropriate training guidelines or team skill proficiencies.

It is our belief that emergency operations as a "Technical Rescue" team should be halted. Particularly in regard to offensive operations at hazardous materials alarms.

Advanced skill operations without Departmental and Training commitments continues to foster dangerous risks to firefighters lives and violations of State and Federal laws and guidelines.

Prior to resuming Heavy Rescue Emergency Operations several items should be accomplished.

Members who will be expected to operate at heavy rescue incidents must receive, training for those types of incidents. These incidents include trench rescues, structural collapses, confined space rescues, water and ice rescues, hazardous materials incidents, rope rescues and vehicle and machine extrication.

Each of these situations have inherent dangers and may require the use of specialized equipment to handle the incident. It is important that all appropriate precautions be taken and standards followed during these training evolution's and actual incidents. Regulations and Standards from OSHA, The NFPA and other regulatory or advisory group may apply and must be followed.

LT. Kay [Signature]
 Lt. [Signature]
 Lt. Ray Edwards

Lt. Fern D. Grant
 Lt. [Signature]
 Lt. Lance B. Pellman

PROGRAM EVALUATION FORM

| Question | Yes | NO | Comments / Suggestions |
|--|-----|----|------------------------|
| Does department have a technical rescue program manual? | | | |
| Does team have a comprehensive Mission Statement? | | | |
| Does team have a clear and comprehensive Vision Statement? | | | |
| Are team goals written and specific? | | | |
| Are administrative guidelines comprehensive? | | | |
| Are objectives specific and quantifiable? | | | |
| Is criteria established for team membership? | | | |
| Do SOGs cover all required areas? | | | |
| Does Team have sufficient equipment? | | | |
| Have core competencies been identified? | | | |
| Has minimum-training standards been set to include skill sheets and task sheets? | | | |
| Has training curriculum been developed or updated? | | | |
| Is a team maintenance plan in place to include a detailed methodology of refresher training and practice drills? | | | |
| Is training documented and records maintained for the team as well as for the individual team members? | | | |
| Has an ongoing evaluation plan been instituted? | | | |